

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of: ) Confirmation No.: 6657  
Tony AMATO )  
Serial No. 10/522,910 ) Examiner: Cameron J. Allen  
Filed: September 13, 2005 ) Group Art Unit: 1797  
For: FLUID PROCESSING APPARATUS )

**REQUEST FOR RECONSIDERATION**

**MAIL STOP AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In reply to the non-Final Office Action dated June 21, 2010, Applicant respectfully requests reconsideration of the present application.

**REMARKS**

The Office Action of June 21, 2010 was received and carefully reviewed. Claims 36-64 and 66-68 are presently pending in the instant application. Reconsideration and withdrawal of the currently pending rejections are requested for the reasons advanced in detail below.

The Examiner's indication of allowable subject matter with respect to claims 43, 45, 50-54, 56-64, and 67 is gratefully acknowledged. However, for the reasons advanced herein, it is respectfully submitted that all of the pending claims 36-64 and 67-68 are allowable.

Claim 36 was rejected under 35 U.S.C. §102(b) as being anticipated by Boucher (U.S. Patent No. 3,672,823). Boucher, however, fails to render the claimed invention unpatentable. Claim 36 recites a specific combination of features that distinguishes the invention from the prior art in different ways. At the very least, Boucher fails to disclose or suggest any of these

exemplary features recited in independent claim 36. For example, independent claim 36 recites a combination that includes, among other things:

*"[f]luid processing apparatus . . . wherein said operating devices are provided at different axial positions along the elongate passage and wherein all axially adjacent operating devices are radially non-parallel and radially non-opposing."*

Notably, the Boucher reference was previously applied against independent claim 36 during earlier prosecution of this application. The Boucher reference was overcome via the arguments submitted in, at least, Applicant's response of June 24, 2009. Minimal amendments have been made to presently recited claim 36 since overcoming Boucher.

On November 18, 2010, the Examiner was contacted in order to receive further explanation as to why the previously overcome reference was being re-applied to previously considered claims. The Examiner alleged that he was able to cite Boucher again, because the currently filed claim language recites the transitional term "comprising," which is synonymous with "including," "containing," or "characterized by," and is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. Thus, according to the Examiner's rationale, he is able to cite Boucher even if it discloses additional elements such as transducers being radially parallel.

Section 2111.03 of the M.P.E.P. confirms "comprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim. However, the Examiner's application of his interpretation of "comprising," in this instant, is erroneous. The Examiner may add "other elements" (as recited by the M.P.E.P.), but he still has not met the requirements under 35 U.S.C. § 102 which requires the reference to teach every aspect of the claimed invention either explicitly or impliedly. Furthermore, any feature not directly taught must be inherently present under 35 U.S.C. § 102 (M.P.E.P. 706.02). In addition, the

Examiner has not met the requirements under 35 U.S.C. §103(a) requiring all the claim limitations must be taught or suggested by the prior art in order to establish a *prima facie* case of obviousness of a claimed invention (M.P.E.P. § 2143.03).

On page 2 of the outstanding Office Action, the Examiner merely states that he “*interprets the claim language comprising to be open ended and to include but not limit the claim to the limitations.*” This same rationale is evident throughout the outstanding Office Action (e.g., see page 2, under Response to Arguments and page 4, lines 13—15). The Examiner has taken the liberty to freely apply the cited references with his erroneous interpretation/application of the treatment of the transitional term “comprising.”

The Examiner prefers limiting the claim language further such as by using the transitional phrase “consisting of” which, in accordance with the M.P.E.P., excludes any element, step, or ingredient not specified in the claim. However, Applicant believes that such an amendment would unnecessarily limit the claims in view of the deficiencies of the cited prior art at this time.

To establish anticipation under 35 U.S.C. § 102(b), the Examiner must show that each and every feature recited in these claims is either explicitly disclosed or “necessarily present” in a single prior art reference, such as within the four corners of the Boucher patent. *See* M.P.E.P. § 2131(7<sup>th</sup> ed. 1998); *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999); *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991). To support a conclusion of anticipation, the Examiner must specifically identify “substantial evidence” setting forth why and how the single prior art reference anticipates each and every feature recited in the claims. *See In re Mullin*, 481 F.2d 1333, 1336-37 (CCPA 1973) (An Examiner’s bare assertion that claims were obviously anticipated by a reference did not inform the Applicant as to why the claims lacked novelty); *Dickinson v. Zurko*, 527, U.S. 150

(1999) (The U.S. Patent Office's findings of fact must be reviewed by the substantial evidence standard).

Viewed against this backdrop, each of the Examiner's factual conclusions must be supported by "substantial evidence" in the documentary record. See *In re Lee*, 61 U.S.P.Q.2d 1430, 1432 (Fed. Cir. 2002). The Examiner has the burden of documenting all findings of fact necessary to support a conclusion of anticipation or obviousness "less to 'haze of so-called expertise' acquire insulation from accountability." *Id.* To satisfy this burden, the Examiner must specifically identify where support is found within the prior art to meet the requirements of 35 U.S.C. §§ 102(b). In this case, however, the Examiner cannot satisfy his burden of demonstrating how Boucher, taken alone or in combination with any other prior art reference, can either render obvious each and every one of the limitations present in independent claim 36 as required by the Manual of Patent Examining Procedure ("MPEP") and Federal Circuit jurisprudence.

The claimed invention relates to fluid processing apparatus which comprise a plurality of operating devices axially spaced along an elongate passage. When fluid passes along the elongate passage, the operating devices apply ultrasonic energy to the fluid, thereby processing it.

The operating devices may require maintenance over time. This requires the provision of one or more access passage provided adjacent to the elongated passage through which a person can gain access to the operating devices. Accordingly, in order to minimize number/space required for access passages, conventionally, the operating devices would be radially aligned along the axis of the elongated passage. This allowed the provision of a single access passage to gain access to the operating devices.

However, a problem exists with the above arrangement in that radially aligning the operating devices limits how closely they can be positioned together. That is, the ultrasonic components of the operating devices which drive the ultrasonic vibrations typically have a large axial foot print, whereas the applicator/operating member components of the operating devices which project into the passage to actually apply the ultrasonic energy have a smaller axial foot print. Consequently, the size of the ultrasonic components limits how closely applicator/operating member components can be positioned together. It has been found that processing performance is enhanced by positioning the applicator/operating member components in close axial proximity and, therefore, the above arrangement is unable to achieve optimum performance.

The claimed invention addresses the aforementioned problem(s) by positioning axially adjacent operating devices so that they are radially non parallel and radially non-opposing. In this way, by radially offsetting adjacent operating devices, the ultrasonic components of adjacent operating devices are able to effectively overlap axially along the elongate passage. This is shown, in FIG. 3 of the application as filed. This construction allows the applicator/operating member components 14 of the operating devices 12 to be positioned in close axial proximity, as shown in FIG. 1, whilst minimizing the space required for access passages.

Turning to the cited prior art as presented in the outstanding Office Action, Boucher fails teach above features as claimed. For example, the Examiner refers to FIGS. 7 and 8 of Boucher in the present Office Action. FIG. 7 shows a longitudinal cut of processing chamber 30 (see column 8, line 66) and FIG. 8 shows a cross sectional view of processing chamber 30 taken on lines 8-8 (see column 9, lines 5-6). Boucher describes an arrangement in which several ultrasonic transducers 56, 57, 58 are permanently fastened to a flat thin metal plate

59. The metal plate is then secured to flange 60 into the top of processing chamber 30. Liquid can be introduced into the processing chamber 30 via sideway inlet 32, where it passes along the processing chamber 30 (i.e. towards the left in FIG. 7). The ultrasonic transducers 56, 57, 58 emit ultrasonic vibrations downwardly (see arrows in FIG. 7) at right angles to the direction of flow of liquid (see column 8, line 66 to column 9, line 15).

As will be understood, in the arrangement of Boucher (shown in FIGS. 7 and 8), the ultrasonic transducers 56, 57, 58 are axially spaced along the length (i.e. spaced longitudinally/axially) of the processing chamber 30. However, in contrast to the present invention, adjacent ultrasonic transducers 56, 57, 58 in Boucher are not radially non-parallel and radially non-opposing, as claimed, at least for the following reasons.

Firstly, it can be clearly seen in FIG. 8 of Boucher that the ultrasonic transducers are aligned radially, because the ultrasonic transducers adjacent to ultrasonic transducer 57 shown in FIG. 8 are not visible in the cross section. This can be contrasted with FIG 2 of the present application, which shows a similar cross-sectional view, with adjacent operating devices 12 being radially offset by angle D°.

Secondly, the arrangement disclosed in Boucher requires that the ultrasonic transducers 56, 57, 58 are all permanently fastened to the same flat thin metal coupling plate 59, which is subsequently attached to the top of processing chamber 30 (see column 8, lines 69-71). Consequently, adjacent the ultrasonic transducers 56, 57, 58 of Boucher cannot be radially non-parallel and radially non-opposing because they are all positioned on the same flat coupling plate 59.

Thirdly, the processing apparatus of Boucher is directed to enhancing ultraviolet sterilization using the application of ultrasonic energy to enhance turbulence and cavitation (see column 5, lines 6-35, for example). As such, the ultrasonic transducers of Boucher are

merely directed to enhancing turbulence and cavitation around the ultraviolet tube 31. Boucher is, therefore, not concerned with minimizing the amount of space available for access passages, or allowing the applicators/operator members to be positioned in close axial proximity. Indeed, not only does Boucher fail to identify these considerations, but they would not, in any event, be applicable to the particular construction employed by Boucher. In this connection, Boucher utilizes ultrasonic transducers which do not have applicators/operator members which directly contact the fluid within the processing chamber 30. Instead the ultrasonic transducers of Boucher simply radiate out ultrasonic waves into the processing chamber 30 through coupling plate 59 (see arrows in FIG. 7 and column 8, lines 72-74). Consequently, the problem of ensuring the applicators/operator members can be positioned in close axial proximity addressed by the present invention is not relevant to Boucher, since Boucher does not have ultrasonic transducers with applicators/operator members.

In addition, the Examiner is directed to the amendment to claim 37 to emphasize that the angle referred to in the claim is the angle between axially adjacent operating devices. That is, as per claim 37, axially adjacent operating devices are relatively radially displaced relative to each other by an angle between 0° and 90°. (Basis for aforementioned amendment can be found, for example, at least at page 2, lines 32-33 of the application as filled.) In this regard, the Examiner refers to column 8, lines 67 of Boucher to alleged disclose the aforementioned claim feature. However, this section of Boucher merely states that the ultrasonic transducers emit ultrasonic waves at “*a right angle to the direction of the fluid stream.*” As such, with Boucher the ultrasonic devices are radially aligned along the processing chamber, with the ultrasonic devices being positioned at 90° to the direction of fluid flow. This is very different

from the claimed invention, in which the operating devices are relatively radially displaced relative to each other along the elongate passage.

Accordingly, it is submitted that Boucher fails to provide any teaching or suggestion of the claimed invention, as recited in independent claims 36 and 66 and associated dependent claims. At the very least, independent claim 36 recites that "*all axially adjacent operating devices are radially non-parallel,*" whereas FIGS. 7 and 8 of Boucher clearly show its transducers arranged radially parallel. Furthermore, the associated sections of the description in Boucher explain that all the transducers are mounted onto a single rectangular metal plate, and, therefore, Boucher would simply not accommodate transducers which were not radially parallel.

For anticipation under 35 U.S.C. § 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present (M.P.E.P. 706.02). Since each and every element, as set forth in the claims are not found either expressly or inherently described as required by the M.P.E.P., Boucher cannot be said to anticipate the invention as claimed. Hence, withdrawal of the rejection is respectfully requested.

Claims 37-42, 44, 46-49, 55, 66 and 68 were rejected under 35 U.S.C. §103(a) as being unpatentable over Boucher. However, dependent claims 37-42, 44, 46-49, 55 rely upon independent claim 36 which recites a specific combination of features that distinguishes the invention from Boucher in different ways as outlined above. At the very least, Boucher fails to disclose or suggest any of these exemplary features recited in independent claim 36. Each of the dependent claims depend from claim 36 and is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 36. In addition, each of the dependent claims also recites combinations that are separately patentable.

As with independent claim 36, Boucher was also previously applied against independent claim 66 earlier in the prosecution of this application. This reference was overcome via the arguments/amendments submitted in, at least, Applicant's response of June 24, 2009. No amendments were made since the submission of amendments to claim 66 on June 24, 2009. Claim 66 is allowable over Boucher for, at least, the reasons set forth in regard to independent claim 36.

The Examiner has failed to establish a *prima facie* case of obviousness for at least four reasons. First, the Examiner has not demonstrated how Boucher, whether taken alone or in combination, disclose or suggest each and every feature recited in the claims. *See* M.P.E.P. § 2143 (8th ed. 2007). Second, the Examiner has not shown the existence of any reasonable probability of success in modifying Boucher, the base reference, based on the teachings of another secondary reference, in a manner that could somehow result in the claimed invention. *See id.* Third, the Examiner has not identified any suggestion or motivation, either in the teachings of the applied references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Boucher in a manner that could somehow result in the claimed invention. *See id.* Finally, the Examiner has not explained how his obviousness rationale could be found in the prior art — rather than being a hindsight reconstruction of Applicants' own disclosure. *See id.*

Each of the Examiner's factual conclusions must be supported by "substantial evidence" in the documentary record, as required by the Federal Circuit. *See In re Lee*, 61 U.S.P.Q.2d 1430, 1435 (Fed. Cir. 2002). The Examiner has the burden of documenting all findings of fact necessary to support a conclusion of anticipation or obviousness "less the 'haze of so-called expertise' acquire insulation from accountability." *Id.* To satisfy this burden, the Examiner must specifically identify where support is found within the prior art to

meet the requirements of 35 U.S.C. §§ 102(b) and 103. In this case, however, the Examiner has failed to satisfy his burden of demonstrating how Boucher, taken alone or in combination, can either anticipate or render obvious each and every one of the limitations present in independent claim 36, as required by the M.P.E.P. and Federal Circuit jurisprudence.

The Examiner has not provided a secondary reference to remedy the deficiencies of Boucher. In accordance with the M.P.E.P. § 2143.03, to establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 196 (CCPA 1970). Therefore, it is respectfully submitted that Boucher, taken alone or in any proper combination, fails to disclose or suggest the subject matter as recited in claim 66. Hence, withdrawal of the rejection is respectfully requested.

Claim 68 depends from independent claim 66 and is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 11. In addition, claim 68 recites a combination that is separately patentable.

Claims 66 and 68 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rawson Francis (EP 0 648 531 B1, hereinafter “Rawson”). Each of the claims recite a specific combination of features that distinguishes the invention from the prior art in different ways. For example, independent claim 66 recites a combination that includes, among other things:

“[a] method of treating fluids comprising placing a fluid processing apparatus into an elongate passage, and passing the fluid through the elongate passage . . . wherein said fluid processing apparatus includes a plurality of operating devices for applying ultrasonic energy to fluid within the passage provided at different axial positions along the elongate passage,

*axially adjacent operating devices being radially non-parallel and radially non-opposing.”*

At the very least, Rawson, whether taken alone or in combination, fail to disclose or suggest any of these exemplary features recited in independent claim 66.

Turning to page 4 of the outstanding Office Action, the Examiner contends that FIG. 7 of Rawson shows both parallel and non-parallel and opposing and non-opposing operating devices. As such, the Examiner contends this would still fall within the claimed meaning of the apparatus comprising axially adjacent operating devices which are non-parallel and non-opposing. That is, the Examiner’s argument is that Rawson’s device comprises these features, provided one ignores alternate operating devices.

However, the Examiner’s rationale is traversed, because it simply ignores the actual teaching of Rawson. While the language, for example, of claim 66 may be considered open-ended, and hence, allow for additional features to be included, the features of the claims still represent strict limitations on that claim which cannot be ignored by omission as the Examiner’s suggests. Applicant argues that the claimed features “*wherein said fluid processing apparatus includes a plurality of operating devices for applying ultrasonic energy to fluid within the passage provided at different axial positions along the elongate passage, axially adjacent operating devices being radially non-parallel and radially non-opposing*” can only be construed to mean that adjacent operating devices in the fluid processing apparatus must be radially non-parallel and radially non-opposing. Without adopting such a construction, this claim feature would be meaningless. Indeed, the Examiner’s contended construction would render the claim totally unclear, because the claim would then include embodiments in which adjacent operating devices are radially parallel and opposing and, consequently, would not be able to achieve the advantages of the present invention.

As discussed in the previous response, the construction of the claimed invention with axially adjacent operating devices being radially non-parallel and radially non-opposing allows for the applicators of the operating devices to be located in close axial proximity. This has been found to enhance processing performance, while minimising the space required for access passages. An arrangement, in which adjacent operating devices are radially parallel and opposing, as taught by Rawson, cannot achieve these advantages. Rawson does not teach or suggest the features including, axially adjacent operating devices being radially non-parallel and radially non-opposing because, by the Examiner's own admission, it includes axially adjacent operating devices which are parallel and opposing (e.g. see FIG. 7).

Moreover, Applicant further submits that it would not be obvious to modify Rawson to exclude the parallel and opposing operating devices. Firstly, there is no teaching or suggestion in Rawson, or any other prior art document, that there would be any reason or advantage for doing so. Secondly, as mentioned above, the construction of the present invention allows for the applicators of the operating devices to be located in close axial proximity. In contrast, Rawson teaches a specific construction in which adjacent vibrating members (70) are separated by seals (76) so as to form a fluid channel. Consequently, a skilled person in the art would not look to exclude the parallel and opposing operating devices in Rawson, because this is necessary to form the continuous fluid channel through the vibrating members. Furthermore, one skilled in the art would not, in any event, seek to modify Rawson to locate its vibrating members in closer proximity, because these are separated by the seals. It is therefore submitted that claim 66, and all claims dependent thereon, are novel and non-obvious over Rawson for at least the above reasons.

In accordance with the M.P.E.P. § 2143.03, to establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by

the prior art. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 196 (CCPA 1970). Therefore, it is respectfully submitted that Rawson, taken alone or in any proper combination, does not disclose or suggest the subject matter as recited in claims 66 and 68. Hence, withdrawal of the rejection is respectfully requested.

In view of the foregoing remarks, this claimed invention, as amended, is not rendered obvious in view of the prior art references cited against this application. Applicant therefore requests the entry of this response, the Examiner’s reconsideration and reexamination of the application, and the timely allowance of the pending claims.

In discussing the specification, claims, and drawings in this response, it is to be understood that Applicant in no way intends to limit the scope of the claims to any exemplary embodiments described in the specification and/or shown in the drawings. Rather, Applicant is entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

**Except** for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 19-2380. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Should the Examiner believe that a telephone conference would expedite issuance of the application, the Examiner is respectfully invited to telephone the undersigned patent agent at (202) 585-8316.

Respectfully submitted,

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